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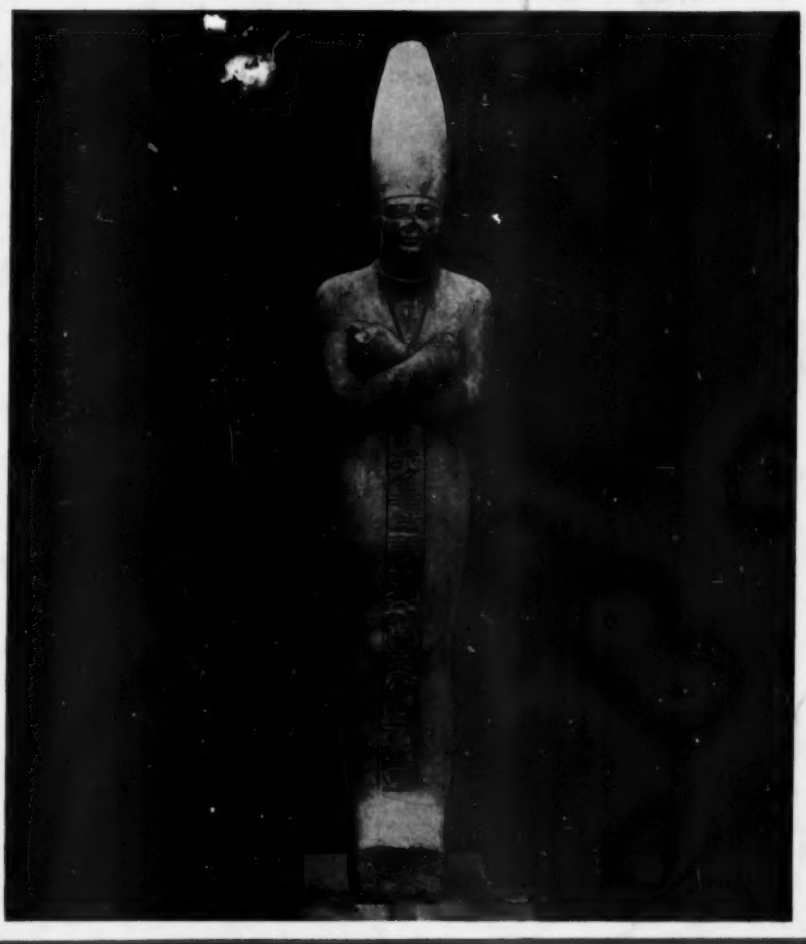
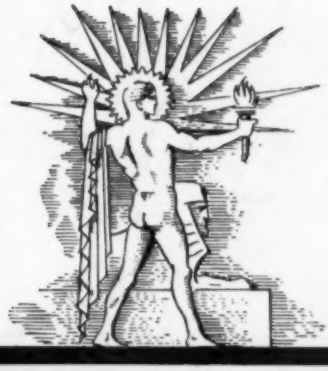
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •





March 4, 1939

High-Hat Pharaoh

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A SCIENCE SERVICE PUBLICATION

Do You Know?

Rubber has more than 50 uses in the modern airplane.

Efficiency in potato-peeling is the advantage in a new variety of potato which has shallow and uniformly smooth surface.

A British scientist comments that posterity will judge success of colonization in the tropics by the condition the land is left in.

Most of the patients getting hospital treatment in Albania are sick with malaria, and in some parts of Albania malaria afflicts half the people.

Test flights show that, with air-conditioned cabins, sub-stratosphere planes can carry passengers in comfort at three or four miles above sea level.

The London Zoo has received a golden snub-nosed monkey, which is believed the first of these animals ever brought alive from China to any country.

Portraits of the Ptolemaic kings of Egypt carved with sphynx bodies make an avenue at a great temple site at Medinet Madi, but archaeologists cannot identify the rulers thus portrayed.

Heating experts find a problem in men's heavy winter clothing and women's light garments—they wonder whether future homes and offices will require separate rooms with different heating for men and women.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in* SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

AERONAUTICS

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Why does the new DC-5 airliner have high wings? p. 133.

AGRICULTURE

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ANTHROPOLOGY

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ASTRONOMY

What is the fuel that provides the light of the stars? p. 140.

FORESTRY

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PHYSICS

What substance grows smaller when it is heated? p. 131.

PHYSIOLOGY

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PSYCHIATRY

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What does an employee value more than he does his pay envelope? p. 135.

PSYCHOLOGY

What challenging questions are put by high school boys and girls? p. 131.

PSYCHOLOGY—PHYSIOLOGY

What sort of mate is preferred by the female chimpanzee? p. 132.

A gold-plated silk dress was recently exhibited in England.

Turpentine and pine oil have added industrial importance since the synthetic camphor industry began to need them.

Soviet Russia reports having one of the world's largest medical libraries, with about half a million books and other medical publications.

Holland's Zuider Zee project, which is pushing back the sea to make new land for the Dutch people, will put into cultivation 550,000 acres of fertile soil.

More than 1,000 game management areas have been established in Missouri.

The musk deer, source of musk in perfume, has no antlers but is armed with a pair of sharp tusks.

The Missouri Botanical Garden has tested dozens of plant labels of different kinds to see which withstand St. Louis weather.

Automobile manufacturers find that bright colored cars gain in popularity in prosperous years and lose favor in harder times.

SCIENCE NEWS LETTER

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PHYSIOLOGY

If You Are Over 20 Years Old You Are Probably Partly Deaf

National Health Survey Reveals That Nearly Half Those Who Think They Have Normal Hearing Really Have Defects

IF YOU are over 20 years old, the chances are you are partially deaf. And you can blame the infections of certain diseases, including the common head cold, influenza, scarlet fever, meningitis, diphtheria. Three-fourths of the population are either totally or partially deaf.

This is the news just made public by the U. S. Public Health Service in a series of four bulletins reporting a study of hearing in connection with the National Health Survey. The hearing part of the survey was conducted by Dr. Willis C. Beasley, senior administrative officer of the Public Health Service, in cooperation with prominent ear specialists.

Of all the 9,000 persons who were given hearing tests and ear, nose, and throat examinations in the Health Survey, only 52 per cent. claimed to have normal hearing. But nearly half (44 per cent.) of these who claimed normal hearing were actually partially deaf. They were unaware of their defect because the deafness occurs principally in the very high tones, above the pitch of ordinary speech. The highest notes of the violin, flute, and piccolo are lost for them.

This loss of hearing, beginning at the age of 20, increases at a regular rate as time goes on.

Degeneration of Nerve

It is due to an actual degeneration of the nerve of hearing, the examinations revealed.

"Practically all deafness among persons over 25 years of age," said Dr. Beasley, "involves some degree of nerve degeneration. This degeneration is more circumscribed among males, rather widely distributed throughout the ear among females."

Deafness in school children is due in the vast majority of cases to congestion or injury of tissue in the middle ear without injury to the hearing nerve.

A new problem for manufacturers of hearing devices is disclosed by the findings of this survey. Men and women, it was discovered, differ significantly in the way in which they grow deaf.

Men lose ability to hear the high tones mostly. Hearing devices for them should magnify the high notes a great deal more than the lower pitches of conversation.

For women the hearing loss is distributed uniformly over the whole range of tones most essential in ordinary life. Devices for women should magnify the notes of the baritone voice as well as the high pitches of the violin and piccolo.

Science News Letter, March 4, 1939

PHYSICS

Rubber Bands Used to Drive Pendulum in Novel Machine

JUST as a locomotive uses steam as its "working substance" to change heat into mechanical work, scientists at the National Bureau of Standards have built an experimental heat engine which uses rubber as the working substance. The alternate heating and cooling of rubber bands keeps the pendulum device oscillating for days on end without attention.

In a report, (*Review of Scientific Instruments,* February) Drs. Lawrence A. Wood and Norman Bekkedahl describe the operation of the ingenious, but simple, device which is a refinement of earlier models originally made by W. B. Wiegand of the Columbian Carbon Company.

The apparatus, called a rubber pendulum, consists of a vertically mounted metal rod which is pivoted at its central point where a small right-angle piece of metal oscillates on knife edges.

The top of the rod holds brass weights while the bottom end is attached to common rubber bands under tension. The action of the weights is to overturn the pendulum but this action is counterbalanced by the pull of the rubber bands.

Mounted in front of the rubber bands is a sheet metal shield shaped like a piece of pie with the point downward. Nearby is an electric heater which shines its heat rays at the rubber bands.

Rubber bands have the unusual property of contracting, with an increase of tension, when they are heated. Thus as the heat rays shine on them they contract and the increased tension pulls the bottom end of the pendulum nearer the vertical.

As the rubber bands come behind the metal shield they are cooled, expand and permit the pendulum to swing outward again. By suitable adjustment of the brass weights the inertia of the system can be arranged so that the pendulum will swing from side to side, alternately heating and cooling the rubber bands. An oscillation period of about five seconds can be obtained. The rubber bands last about two weeks when in service for eight hours each day.

Science News Letter, March 4, 1939

RUBBER MAKES IT GO

To the uninitiated observer this novel machine looks like a demonstration of perpetual motion. Contraction of the rubber bands caused by rays from the electric heater makes the pendulum swing.

PSYCHOLOGY

Boys and Girls Pose Unanswerable Queries

ALL of us go about with many questions we can't answer or get others to answer for us. For most of us they have been so long unanswered that we have become accustomed to the situation.

For adolescent boys and girls in school,

youngsters from 14 to 18, some of the eternal question marks may be more vivid. Dr. George Lawton, of Columbia University and Evander Childs High School, New York City, has made a study of questions these children find unanswerable. The results are interesting.

Most of all they have to do with love. Then God, death, criticism of people in general, life, the future, the hereafter, religion, reincarnation and the end of the world.

Here are the questions of those aged 14, arranged in order of frequency of asking:

Why are we born, what use is life? What makes people unkind, selfish, etc.? What is love, platonic love, true love? Is there a God? Is there such a thing as reincarnation? What happens to us (our souls) after we die? Why should there be wars, and why do people go to war? Why does a new scene seem to have happened before? What makes the world rotate and why don't we feel it? Why must man worship something?

Other challenging questions asked by individual boys and girls, include:

Why can't the same government control all the peoples of the world? What do people get out of life when they don't give anything? Why don't they teach sex in school? Are our lives planned for us or do we do things because we want to or because we are compelled to? Why should parents never give us the satisfaction of saying we understand what is going on in the world about us, as in politics, religion, and so forth, and tell us that we are too young to understand? Would people be happy if they had what they desired? Is it very necessary to consider religion before marrying? Could the world get along with everybody believing in the same thing?

And now, do you, dear reader, know the answers?

Science News Letter, March 4, 1939

PSYCHOLOGY

Birds' Taste Sense Similar to Humans'

SENSE of taste in pigeons, ducks and chickens is essentially the same as taste in human beings, declares Dr. C. Engelmann, writing in *Die Umschau*.

These three domestic bird species perceive the four fundamental taste classes: sweet, sour, salty, bitter. In numerous tests with variously flavored water solutions, Dr. Engelmann found that pigeons have the most acute sense of taste, chickens the least.

Science News Letter, March 4, 1939

PSYCHOLOGY—PHYSIOLOGY

Primates Have Mating Period As Do the Lower Animals

Chimpanzee Courtship Studied at Yale Laboratories For the Bearing on Human Problems of Marriage

MEN and women probably have a natural mating period as well as do the birds or the creatures of woods and fields. This is indicated by research just reported by Dr. Robert M. Yerkes of the Yale Laboratories of Primate Biology.

Working, not with humans themselves, but with their near relatives, the man-like apes, Dr. Yerkes found that primates do have preferred occasions for love. Not restricted by the social taboos, modesties, and deceptions that society imposes upon humans, the chimpanzees revealed the recurring periods during which they longed for their mates. It is during these periods that young may be produced.

The girl who "picks her man" among the life-guard or other typical he-man types is following the same pattern that governs the chimpanzee. The female chimpanzee "falls for" the typically masculine among her ape companions.

Doesn't Want Dominance

But don't make the mistake of believing courtship among the chimpanzees to be a "cave-man drama" where the male pursues the female and drags her off by the hair of the head with a display of aggressiveness and cruelty.

The chimpanzee female does not welcome force in her mate. She makes friends with the domineering male. She may even grow to love him dearly just as the human girl is devoted to a stern father. But when it comes to choice in courtship, her preference goes to the less domineering animal.

And it is the female who does the proposing in the chimpanzee family. There is no show of coyness, reluctance, or even "come-hither." If she wants him, she goes after him. She rushes to him and prostrates herself at his feet. If she does not want him she usually knows how to manage to put him off.

"Grooming," which might be considered as the chimpanzee parallel of human "petting," is such a feminine wile used to distract the male from more intimate relations. It is also a way of expressing affection and tenderness.

When it is the male who grooms the female, he is trying to curry favor with her or is demonstrating his friendliness.

Chimpanzee grooming is not very different, apparently, from the way humans have of rumpling or smoothing the head of the loved one.

The purpose behind the Yale studies of apes such as this one reported by Dr. Yerkes in the scientific journal, *Human Biology*, (February) is not mere curiosity regarding the intimacies of life among the lower animals.

"It is not to improve the chimpanzee," Dr. Yerkes declared, "nor even to satisfy our curiosity about its patterns of behavior and their mechanisms that we study the organism persistently."

Because the chimpanzee is so very much like man, he can serve as a substitute for him in laboratory conditions to which men could not be submitted.

By study of the ape, it is hoped that men may gain knowledge regarding the processes of life and of birth control and may learn how to make human marriages more happy and satisfying.

"In the forefront of human needs," said Dr. Yerkes, "is the wise control of sexual behavior and of the quantity and quality of population. For the satisfaction of these necessities our knowledge and understanding of the nature, conditions, and relations of sexual and reproductive phenomena are wholly inadequate.

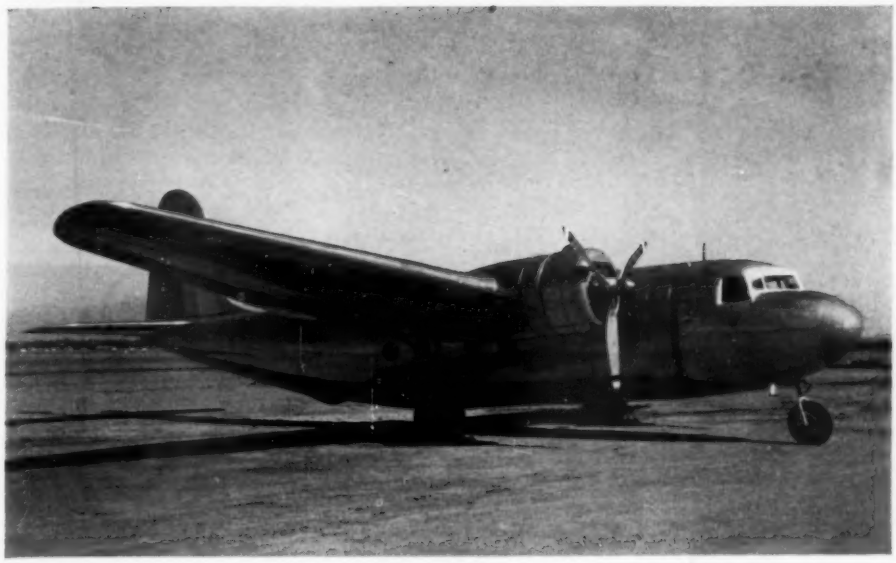
Commands Interest

"Fortunately research in this field of biology commands universal interest, and its results are promptly seized upon for critical scrutiny, evaluation, and application.

"The continuing study of chimpanzee behavior, from which the materials of this report are derived, is motivated primarily by interest in human problems."

Science News Letter, March 4, 1939

A titled British manufacturer has announced that he will make and present to every hospital in the British Empire an iron lung of Australian design.



DC-5

A baby skyliner with high wings.

AERONAUTICS

DC-5 To Feature High Wing So Passengers Can Enjoy View

Baby Airliner Built for 16 Passengers Has Just Been Given Its First Test Flight by Douglas

FITTED with the first high wing seen on an American transport in many a year—so passengers may enjoy the view—the baby skyliner has made its first test flight. It is the DC-5, built at the El Segundo plant of the Douglas Aircraft Company.

Designed for small airport and feeder line operation from the tricycle landing gear up, the DC-5 is latest product of the engineers who put air transport on the map with the DC-2 and DC-3, both now in almost universal airline service.

Aviation has come a long way since the days of the first all-metal low-wing monoplane. It must have, if you can label this trim 16-passenger ship a baby. Yet it is, for you can almost lose it under the wing of its big sister, the colossus itself, the DC-4, world's largest landplane.

It has all the latest gadgets and all the things the airlines want in it, for before construction was begun, detailed drawings were sent to airline offices all over the country. When first suggested it was little more than a cross between the DC-2 and DC-3, and the airlines came back with a request for the three-wheeled landing gear the Douglas people themselves had pioneered on the DC-4, and the high wing. Passengers are getting sick of being able to see nothing but shiny aluminum, the ticket offices said. The windows are also big, for a change. Besides the high wing plane is inherently more stable.

Nevertheless, wherever possible, standard DC-2 and DC-3 parts and sections are used, for that serves to simplify the complicated maintenance problem and reduce the cost of spare parts, particularly during a transition to the new plane, when operators of the DC-2 will undoubtedly be using both the new and the old ships.

Its top speed is calculated at 248 miles an hour, its landing speed a comfortable 64. The powerful brakes that can be used on a stable, three-wheeled plane will give it a very short landing run. Two engines of around 1050 horsepower each will take it off the ground in 750 to 875 feet. The usual pair of pilots and a stewardess will be aboard.

Science News Letter, March 4, 1939

PSYCHIATRY

Sex Criminals Should Go To Laboratory, Not Jail

THE SEX offender who molests small children is a challenge.

His crime inevitably rouses such deep resentment and revulsion that usually he is dealt with in passion rather than in sane, logical manner.

Yet until he has committed an overt crime, the potential sex criminal is customarily ignored by police, social agencies and physicians.

Not all sex criminals are sexually abnormal. Some have only the normal drives that were heritages from Adam, but because of stupidity, mental disease or alcoholism they are unable to control their impulses in a sensible, lawful way.

To imprison such an individual is not good sense. Obviously he should go to a hospital for the mentally ill.

But what of the sex offender who is abnormal sexually? He is sane in the legal, and in the layman's meaning of the term. Yet he, too, is not mentally normal in the medical sense. To imprison him may temporarily protect society from his molestations, but it does not change him except for the worse.

Yet if all the sexually abnormal persons could be sent to hospitals tomorrow for treatment, wards would be crowded indeed, but the patients themselves would benefit very little.

It is literally true that physicians do not know what to do for most of these persons. Even sterilization offers no solution for this problem. The need for research in this field is urgent. A new suggestion, made by Dr. Ira S. Wile, New York City psychiatrist, would facilitate such investigations.

Instead of sending the sex offender to jail, he urges, in the *Journal of Social Hygiene,* let's sentence him to serve as a subject of scientific research concerning his own condition. Let's see that he gets the best treatment now known. But let's make him contribute to the future by aiding in the development of new treatments and preventive measures.

It may be, Dr. Wile says, that the study of glands will result in a treatment that will modify the sex desire. It may be that a new drug as specific for the sex pervert as insulin is for the diabetic, will be discovered.

The sex offender is the victim of his own uncontrollable needs. He is human, like the rest of us, and even though he is a menace, is entitled to sane treatment and study.

Science News Letter, March 4, 1939

ANTHROPOLOGY

Distinct Racial Types Found In Skulls of Single Family

Ancient Remains of Old Stone Age Discovered in Choukoutien Cave Shows Racial Mixture Is No New Thing

Here is detailed first-hand report on new discoveries of "modern" type human skeletons, apparently of a family violently murdered, in the Chinese caves of Choukoutien, already famous as the home of the extremely ancient race of Peking Man.

By DR. FRANZ WEIDENREICH and DR. W. C. PEI

Leaders of Research on Remains of Peking Man

THE NOW world-famous caves and clefts of Choukoutien housed not only the very ancient Sinanthropus population but also, though separately in a cave located on top of the hill—known as the "Upper Cave"—quite a different population who lived there at a much later period. This Upper Cave was discovered in 1930 and excavated systematically in 1933 under the supervision of Dr. W. C. Pei, but the results have only now been worked out.

The population of the Upper Cave already represent modern mankind. In accordance with their physical appearance they were the bearers of a relatively advanced culture, as is evident from the discovery of stone implements, a bone needle, a bone implement and necklaces or other ornaments made from beads of perforated teeth, shells, worked stones, fish and bird bones.

The fauna in the cave, composed of thousands of animal skeletons, conforms to the physique and culture of the man under discussion. Bear, hyena and ostrich found there have become entirely extinct since, whereas the tiger and hunting leopard have disappeared completely from this part of China and Asia.

All these facts indicate that the period during which the Upper Cave population lived corresponds to the Late or Upper Palaeolithic time of Europe, determined as the Aurignacian, Solutrean, Magdalenian, implying approximately 100,000 to 200,000 years ago. For the first time, representatives of an Upper Palaeolithic population have been discovered to occur on the soil of Asia, outside of Palestine.

The Upper Cave population possibly consisted of one family only: an old man, a younger man of indeterminable age, two relatively young women, an adolescent, a child of five years and a newborn baby—perhaps even a fetus. The condition of the preserved skulls proves that all of them were killed by heavy blows with pointed and blunt weapons, possibly while being attacked by hostile tribes.

Three of the skulls, however, are sufficiently well preserved as to permit a determination of their special character. Though all three show certain features of the face in common, nevertheless they differ in others, thus giving the impression that they belong to three different racial groups. One of the women looks like a modern Melanesian of New Guinea, the other like an Eskimo.

The old man is of special interest in several respects. According to the form of his braincase he has to be considered a very primitive type, not too far removed from the stage of the Neanderthal Man. Again in other features he recalls the European Man of the Upper Palaeolithic, whereas the face points more to recent Mongolian types, though not actually identical with any one of them.

The skull of the Melanesian-like woman also shows a deformed forehead such as is found in consequence of artificial deformation among American Indians and other Eastern people of later times.

From all these facts certain conclusions may be drawn in regard to the racial history of mankind, general as well as special:

(1) The widespread belief, that racial mixture constitutes the product of modern civilization and that the physical appearance of the human groups become the more uniform the further they are traced back, turns out to be in contrast to the existing facts. It rather seems that the tendency to produce and cultivate more uniform types is a secondary acquisition fostered by progressing exclusiveness and isolation.

(2) Mongolian types like those of the modern North Chinese population are not represented among the Upper Cave people. But this does not imply that they did not exist during that early period, for the presence of Melanesian and Eskimo types proves that a finer differentiation had already taken place. Possibly that special racial group had settled in other regions, then, or the Upper Cave population does not represent the actual settlers but belonged to a migrating tribe foreign to the country.

(3) Skulls with the appearance of Melanesian, Eskimo and even primitive types similar to the Old Man of the Upper Cave are not infrequently found among the pre- and post-Columbian American Indians. The analogous findings of Choukoutien prove that long before any immigration from Asia to the New World really took place the same types which compose the American native population were settling in or migrating through the eastern part of Asia.

People with a good sense of imagination may think that we had the luck to catch in Choukoutien the first Indians on their way to the new continent.

Science News Letter, March 4, 1939

ARCHAEOLOGY

Unearth Caliph's Palace In Dry Jordan Valley

CALIPH HISHAM, who wanted to spend his winters in a warm, dry climate—and who never got his wish—is now gaining belated fame on the subject a thousand years after his death.

This Caliph of the eighth century found the damp and chilly winters in Damascus were bad for his health. So, he began building a delightful winter resort palace in the warm, dry valley of the Jordan River, north of Jericho. But he never had a chance to hold audience in the throne room or to entertain visitors at banquets or enjoy the bathing pool, or worship in the palace mosque.

When Hisham died in 743 A.D., the winter resort was unfinished. An earthquake not long after shook down part of the construction, and Hisham's successors ignored the whole project.

Dug up now by the Palestine Department of Antiquities, the winter palace is a revelation of the extravagant beauty at command of old Moslem potentates. Hisham himself has long been a bone of historic contention. Some writers denounce him for a coarse and grasping Bedouin. Some praise him highly as an able prince and the enemy of luxury.

The winter resort suggests the work of an able prince, but not exactly the enemy of luxury. The foundations and broken columns and walls are ornately decorated with mosaic, frescoes, and

carvings. The style of architecture is elaborate.

A surprising feature is the presence of human and animal designs among the wealth of art figures. Moslem aversions to picture-making of men and animals are well known. But the prohibition is not in the Koran, and it is now evident that Hisham's era saw no official objection to the human form in art. That must have come later.

Hisham's palace not only was adorned with whole rows of portrait heads in stucco paneling, but there was even a statue of a plump dancing girl wearing a skirt and carrying stiff bouquets of flowers.

Science News Letter, March 4, 1939

PSYCHIATRY

Says Pay Envelope Is Not Employee's Greatest Concern

Prestige and a Desirable Social Setting Are Important For Maintaining of Morale Among All Types of Workers

THE BUSINESS executive is making a mistake when he tries to manage his concern on the principle that the only thing that matters to his employees is "what is in the pay envelope," Dr. Temple Burling, psychiatrist with a large New York department store, told the American Orthopsychiatric Association.

The difficulties which industry is experiencing today in handling personnel relationships is chiefly due, in Dr. Burling's opinion, to this mistaken idea the average business man uses in thinking about human motives.

As an example of some of the other things about a job that matter to the worker, Dr. Burling described the executive "who has to have his office redecorated with each promotion, in order that it shall adequately express his importance." At the other end of the economic scale, there is the story of the delivery truck driver who had been put on another job because of an illness. He was very anxious to get his old job back, not from economic motives (because his pay had been kept the same) but because he had a three-year record of no accidents, felt himself one of the elite in consequence and was eager to be back where he had obtained recognition and could go on to increase his reputation.

The term economic security, Dr. Burling pointed out, becomes confused and vague if it is considered apart from other kinds of security. It means more than food, clothing and shelter, for millions who are concerned about economic security have no cause for anxiety about these things.

"Their anxiety," Dr. Burling declared, "is for a secure place in a social setting which they regard as desirable. A job, both directly by its prestige, and indirectly through the wages it brings, helps to maintain this security and at the same time is a very appreciable part of the social setting in which the individual wishes to maintain himself."

Considering a man's total personality in his total situation, including job, family, social life, etc., is the greatest contribution psychiatry can make to industrial management he said.

Science News Letter, March 4, 1939

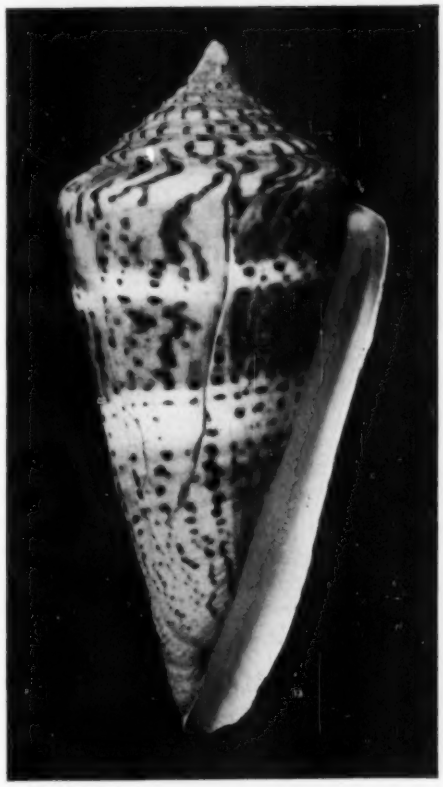
Love Cures Delinquency

Loving kindness as a remedy for delinquency and behavior disorders in some children was advised by Jeannette Axelrode of the New York Jewish Board of Guardians. The old-fashioned case worker who had none of the modern techniques for handling such cases often got good results by the warmth and devotion he unconsciously gave to his small clients, Miss Axelrode pointed out.

She suggested that this treatment by loving kindness—supportive therapy is the technical term—might be used with advantage in modern psychiatric treatment of certain patients. Some of the young delinquents are starved for love. "Suffering from a lack of emotional vitamins necessary for normal growth" is the phrase Miss Axelrode used.

Some of the failures in modern treatment of these patients come, she suggested, from the fact that psychiatrists are attempting to treat a fever when the child is suffering from malnutrition. In other words, the child is suffering from emotional deprivation but is getting treatment for emotional conflict.

Science News Letter, March 4, 1939



CONUS SOZONI

MALACOLOGY

Two Exquisite Shell Species Named For Diver and Wife

ON WEDDING anniversaries and birthdays, Sozon Vatikiotis, of Tarpon Springs, Florida, does not need to send flowers to Helen, his wife. All he needs to do is hand her two small seashells, as exquisitely shaped and delicately colored as any orchid.

These shells represent some risky reef-exploring work by Mr. Vatikiotis, who is a deep-sea diver. Recognized as species new to science by Dr. Paul Bartsch of the U. S. National Museum, they have been given specific names in honor of the discoverer and of Helen, his wife: *Conus sozoni* and *Fusinus helenae*.

When the first of the two was sent to Dr. Bartsch by Mrs. Vatikiotis, he wanted to name it for her, but she insisted that it be named for her husband, because "he had risked his life in obtaining it." Then the diver came up with a second tiny but lovely treasure, and Dr. Bartsch was able to give Helen Vatikiotis a scholarly bow also. The two species are figured and described in a new publication of the Smithsonian Institution. (*Turn to Page 142*)

PHYSIOLOGY

Could Halve Number of Deaf By Treating Ears of Child

THE NUMBER of deaf adults could be reduced by 50 per cent. if the ears of school children in the primary grades were periodically examined and, when necessary, treated.

This is the opinion expressed by Drs. S. J. Crowe and John W. Baylor of Johns Hopkins University School of Medicine, Baltimore, in the leading article in the *Journal of the American Medical Association*.

The most common type of middle ear deafness in adults begins during childhood, the Johns Hopkins research workers find.

Often it progresses so gradually and insidiously that it may not become evident until it is too late to correct the primary trouble and to restore the hearing.

The Baltimore otologists suggest that children in the primary grades be examined at least once a year with a nasopharyngoscope. Those with hyperplastic lymphoid tissue in and around the orifice of the eustachian tubes should be treated with radiation as often as it is necessary to insure normal functioning of the tubes.

Partial obstruction of the eustachian tube in children causes a progressive loss of hearing, beginning with high tones and gradually involving the low tones. If the causal condition is recognized and properly treated before the age of 15, hearing usually returns to somewhere near the normal level.

The conclusions drawn are based on detailed observation of 60 children in some cases for ten years.

Science News Letter, March 4, 1939

ASTRONOMY

New "Nova" Star Is "Slow Motion" Version

THE WACHMANN nova, an exploding star found last month in Orion, may provide a "slow motion" version of one of the sky's most spectacular dramas, Harvard Observatory reported.

Checkup in Germany and Harvard on the nova discovered Jan. 18 by Dr. A. A. Wachmann, Bergedorff Observatory, Germany, reveals that this star is probably a peculiar "slow nova." If so, changes will take place in the star about fifty times as slowly as in the normal nova, enabling very careful observations.

Harvard explained that the ordinary nova, like famous Nova Herculis of 1934, flares up suddenly, usually increasing in brightness by several hundred thousand times in a few days; then it fades, in a month or two, to about half its maximum brightness. The star passes through several different stages of physical condition, difficult to observe in the short time. Only one "slow nova" has previously been found, the star "RT Serpentis" discovered in 1919.

Photographs showed it had flared up in 1909. If the Wachmann nova follows the schedule of RT Serpentis, great spectrum changes will take place in the next decade or two, changes which in the life of the ordinary nova are compressed into about a year. At present, Yerkes observations show, Wachmann nova differs little in spectrum from other highly luminous stars.

When discovered, the Wachmann nova was of tenth magnitude. Plates at Sonneberg Observatory, Germany, actually first photographed the star at 12.5 magnitude Jan. 16, 1937, after which it brightened quickly until May 26, 1937. Since then the brightness has remained practically constant. Harvard photographs confirm these observations and show that between 1889 and 1934 the star was fainter than 12th magnitude, and in 1934 was actually fainter than 15th magnitude.

Science News Letter, March 4, 1939

AGRICULTURE

Seedless Watermelon Developed in Michigan

DEVELOPMENT of a seedless watermelon through experiments carried on at Michigan State College has been announced. The discovery is credited to a Chinese graduate student, Cheong-Yin Wong.

Scientists long have sought a seedless watermelon. They have succeeded in producing seedless tomatoes, peppers, eggplant, and long-necked summer squash, but up to now both watermelon and pumpkin have persisted in retaining their seeds.

The new watermelon is reported to have smaller whitish veiny sections than the normal melon, but to taste practically the same. Its exterior shape has been changed, being more pear-like than oval.

Experiments were carried on with Michigan watermelon, which average about eight pounds in weight and are smaller than southern watermelon. Mr. Wong said that field production of the seedless watermelon might be difficult but that it has decided advantages for greenhouse production.

Science News Letter, March 4, 1939

IN SCIEN

AERONAUTICS

Wind Sounding Method May Aid Planes Landing at Sea

DEVELOPMENT of a new method of taking wind soundings at night to show not only direction and force of the wind, but of eddies and turbulent areas, is reported to the Engineering Foundation by Prof. Athelstan F. Spilhaus of New York University.

A thin rubber balloon carrying a series of magnesium flares fired at frequent regular intervals and a pair of 180-degree cameras to record the progress of the balloon as shown by the lighting of the flares constitute the new system.

Essential wind soundings for airplanes at sea and for boats can be obtained easily at night by the new method. Until now a balloon carrying a light, and a theodolite—an instrument for measuring horizontal and vertical angles—have been used to measure the balloon's progress and therefore the wind. But theodolite observations cannot be made more frequently than every 30 seconds, too infrequently to secure really detailed data. Detailed data are particularly important for planes attempting to land on the deck of a carrier. The carrier's bulk causes eddies in the air around it.

Science News Letter, March 4, 1939

ENTOMOLOGY

Ant That Stings Like Wasp Lives in American Tropics

AN ANT that stings like a wasp is described by Prof. Neal A. Weber of the University of North Dakota. (*Science*, Feb. 10)

Prof. Weber was stung twice by individuals belonging to this species—which was twice oftener than he liked. Once, in British Guiana, a worker insect drove its sting through a heavy khaki trouser-leg into his knee. The second sting was acquired in the Canal Zone, where a female insect crawled up inside his jacket sleeve and stung him on the arm.

The stings hurt like those of a vicious wasp, Prof. Weber reports, and the effects lasted for nearly five hours.

Science News Letter, March 4, 1939

NCE FIELDS

PHYSIOLOGY

Arsenic And Other Poisons Needed in Human Diet

YOU NEED arsenic in your food. Not much of it—so little, indeed, that ordinary chemical analysis won't detect it. But if those few thousandths of a snowflake's weight aren't there you won't be healthy.

The same is true for a couple of other poisonous elements, lead and manganese.

These elements are present in most soils, but in extremely small quantities, and ordinary tillage exhausts them, says G. Douglas Jones (*Agricultural Engineering*). To make them more available to plant roots, deeper tillage is needed. Mr. Jones is at work on several types of new soil-stirring implements. One of them, which he calls the ripper, works to depths of three feet.

Science News Letter, March 4, 1939

PHYSIOLOGY—CHEMISTRY

Complex Chemistry Of Mother Love

NUTRITION and the chemistry of the body seem to get more complex with every new fact discovered by scientists. Take the maternal instinct as an example. Poets for ages past have sung its praises under the name of mother love, and psychiatrists have had their say about it too, not all of it laudatory. From the psychiatric viewpoint, mother love often gets out of hand or is used as a mask for other less desirable emotions, with disastrous results.

Reducing mother love to a matter of chemistry seemed simple but apparently is not. One group of scientists has found that a small gland in the brain, the pituitary, produces a chemical called a hormone which, among other things, stimulates maternal instinct or mother love in laboratory animals.

Another group of scientists found that mother love was tied up with the amount of a mineral, manganese, in diet. Manganese is considered an essential part of the diet, although only very tiny amounts of it are needed. No one needs to worry about not getting enough manganese, apparently, because these scientists had a difficult time preparing a diet that did not contain a small trace of manganese. When they finally made up such a diet, in order to learn whether, and if so why, manganese was a dietary essential, they found that rats deprived of it failed to develop the maternal instinct.

Latest addition to mother love chemistry ties it up with vitamins, Vitamin B_1 specifically. Overabundance of this necessary vitamin, it has been reported, after one generation interferes with lactation, causes loss of maternal instinct, cannibalism and progressive loss of fertility. The findings were made on rats. But manganese came to the rescue and reversed the process due to too much vitamin B_1. The results are said to show that manganese is essential for utilization of B_1 in the body tissues.

The studies were all on animals. What the findings mean for humans has not yet been determined.

Science News Letter, March 4, 1939

PHYSIOLOGY

Gland Extract Tried For Weight-Reducing

A NEW extract from the pituitary gland is being tried out in Montreal as a weight-reducing medicine.

No reports in terms of pounds-lost-per-week are yet available. The editor of the *Canadian Medical Association Journal,* however, says the tests of the new gland extract "give promise of great advance in the difficult problem of weight-reduction."

The extract, known as No. 622, was obtained from pituitary glands of animals by Drs. J. B. Collip and D. K. O'Donovan at McGill University. They found that when given to animals this extract increased the heat production and energy expenditure of the animals' bodies. It did this, apparently, at the expense of fat.

Tests of the new gland extract have now been made on three human subjects. The same speeding up of heat production and energy expenditure at the expense of fat occurred.

In cautious scientific language Dr. Collip and associates, Drs. I. M. Rabinowitch, Marjorie Mountford and D. K. O'Donovan, report their results to the *Canadian Medical Association Journal.*

"The possible uses of this extract in the treatment of obesity and in conditions in general where an increase of metabolism is desirable are now being investigated," they state.

Science News Letter, March 4, 1939

PUBLIC HEALTH

Influenza Is Epidemic But Cases Are Not Reported

STATISTICALLY there has been no influenza epidemic this year. Clinically there has.

This is the way officials of the U. S. Public Health Service sum up the situation in which many persons have been sick, and, in Washington at least, hospitals have been crowded, nurses and doctors badly rushed, but reports for the entire nation showed only 3,802 cases for the week ending Feb. 11.

That figure is lower than the 4,310 cases reported throughout the nation the previous week, and it is insignificant compared with the number reported during one week at the peak of the 1937 epidemic, which was 37,101.

During the week of Feb. 18 influenza jumped up 81 per cent., according to reports received by the U. S. Public Health Service. The total for that week was 6,895.

The number of cases should now begin to drop off, public health officials said, because this week marks the usual peak of the influenza season. They are not inclined to consider the present number of reported cases, in spite of last week's increase, as indicating an epidemic. If the cases had followed the five-year median there would have been 8,591 cases reported during the week of Feb. 18, instead of 6,895.

The cases this year, reported or not, are officially considered influenza. The disease is mild, however, and is accompanied so far by only a little pneumonia and has not yet caused any rise in the death rate.

The mildness of the disease accounts in part for the lack of reports, although reports of influenza even during severe epidemics always fall far behind the actual number of cases.

Another reason why cases are not being reported is that considerable confusion exists as to what is influenza, what is grippe and what is a bad feverish cold. Every year at this season there is an increase in the number of these ailments which physicians lump together as upper respiratory diseases.

To avoid getting influenza, the Public Health Service advises staying away from patients, especially in the early stages of their sickness. Those who have influenza are advised to keep very quiet and take a prolonged rest, avoiding undue exertion for some time after they begin to feel better.

Science News Letter, March 4, 1939

MEDICINE—ETHNOLOGY

A Maze of Superstitions

The Age-Old Battle Between Enlightened Medicine and Superstitious "Cures" Is By No Means At an End

By EMILY C. DAVIS

IT MAY seem incredible, but a great many Americans are still using magic to cure illness or to ward off disease.

Oh, of course, no gentleman recovering from a hang-over would rub an amethyst on his aching head. That went out with the Middle Ages.

You probably couldn't find anybody today who would grind up an emerald, even a tiny one, and put the powder into sore eyes to heal them. How could that do any good?

And certainly nobody would think of re-decorating a bedroom in bright red to help a smallpox patient get well. Ridiculous!

And yet—

Thousands of people in America put faith in performances definitely in a class with these medieval cures. In short, we Americans have not escaped entirely from the clutches of that fearsome but fascinating power—superstition.

Just for example:

Carrying a horse chestnut—some people call it a buckeye—in your pocket for rheumatism! There's a bit of typical American magic.

Believing that an unborn child can be marked if its mother has an unpleasant experience. All over the country you can find mothers who worry, needlessly, over that ancient superstition.

Putting a cobweb on a wound to heal it. Dust, germs, and all! That was not so bad in Queen Elizabeth's day, when nobody knew about infection. But despite our widespread knowledge of first aid, the cobweb treatment is still prescribed all too often by some kibitzer when an accident occurs. Not so long ago, it gave a small child lockjaw. To test the cause of the child's death, cobwebs from the same source were applied to guinea pigs. They developed lockjaw, too.

At The Fair

Perhaps you begin to see why folk magic is not a joke in America.

Superstition is so widespread, and so serious in its effects, that the New York World's Fair will include in its Medical Building one vivid exhibit devoted to showing medical superstitions—and showing them up.

There is to be no advertising in the medical exhibits. The sponsor who makes an exhibit possible receives honorable mention on a placard. In the case of the medical superstition exhibit the Bayer Company is the sponsor.

A maze of superstition! That is what the exhibit will be, leading the visitor through a tangle of ridiculous and serious misbeliefs regarding health and disease. The committee of physicians which planned the exhibit think of the person who relies on magic for his safety from illness as being in his own maze. While he dallies with folklore, hoping to outwit nature's laws, he is losing time and not getting scientific treatment that research has evolved.

In the maze of superstition, fair visitors will be shown for example a wide variety of folk magic practiced by people with rheumatism.

Rheumatism

Rheumatism being a stubborn malady that is not treated by physicians according to a single medical routine, the sufferers from aches and twinges are ready prey for suggestions of friends. It is simple to make a ring out of an old nail and wear it on your finger. Can't do any harm, says the friend. So the rheumatism patient makes a cramp ring, and when his aches take a turn for the better, he is all too eager to give the ring credit. When the aches come back, he tries to believe they are not so bad as before he got his ring. Meanwhile, he probably is not taking any treatment that might help him.

Wherever in America psychologists and doctors and folklore specialists have probed into the medical beliefs of a state or locality, they find a large assortment of rheumatism "cures" of this type.

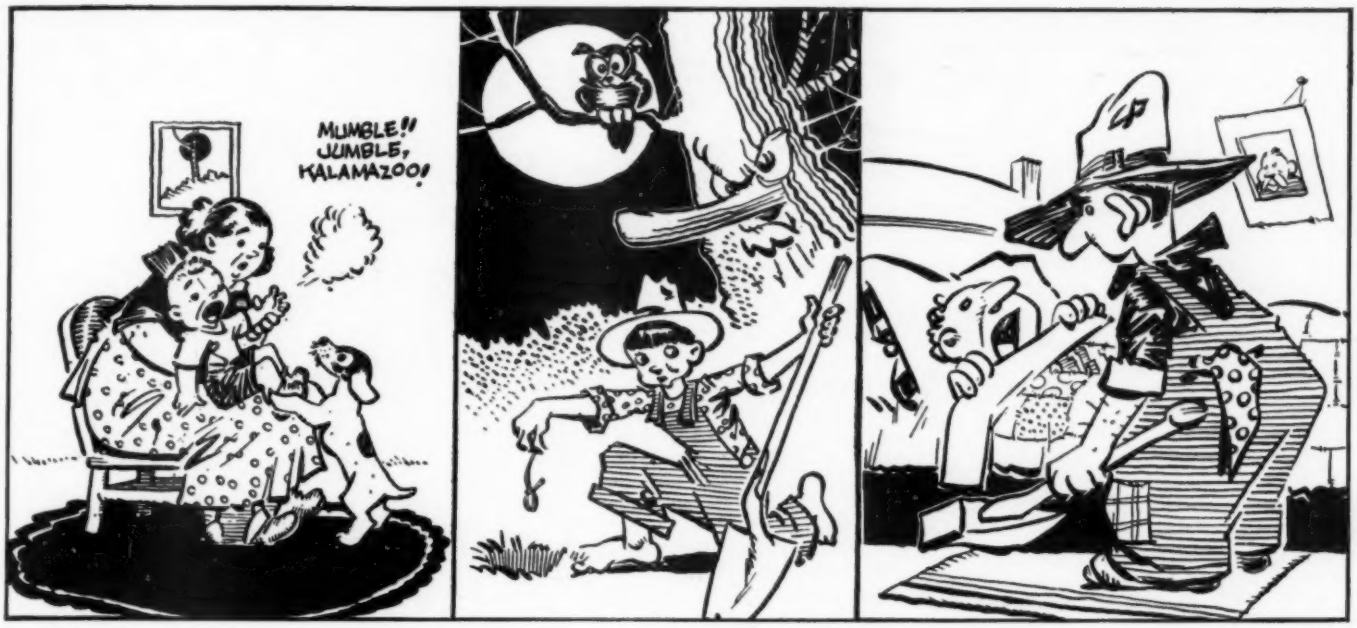
Prescriptions

Here are a few folk prescriptions, all for rheumatism:

Wear a lead ring.
Wear a silver ring.
Wear a brass ring on your left thumb.
Wear a brass belt.
Wear a nutmeg around your neck.
Cross your shoes at night.
Sleep with a dog. When the dog catches your rheumatism, yours will be gone.
Wear red flannel, and it must be red.
Wear red flannel on your waist.

AT NEW YORK'S WORLD FAIR

The maze of superstitions will show the person relying on magic loses time on the road to recovery. A count will be made of the persons who avoid going under the ladder as they enter.



Carry a potato in your pocket to absorb the disease.

Carry a horse chestnut in your pocket. (Some say it should be begged or stolen.)

Of all these remedies, the buckeye, or American horse chestnut, seems to have the most devotees. To many of the people who carry a buckeye, the idea is no more than a pleasant diversion. The aura of fascination that surrounds all magic is around the small brown object. An American millionaire once sent to a wealthy and rheumatic lady a buckeye for her birthday.

Where Americans got the idea that a buckeye is good for rheumatism is hard to trace. It is possible that the marking of the buckeye, resembling the eye of a buck or stag, gave it value as a charm long ago. Anything resembling an eye has always been thought good in magic.

On the other hand, it is easy to explain why a piece of red flannel—and it must be red—is folk treatment for rheumatic aches. Of all colors in healing magic, red has been the color most favored. Red is the color of life blood, the color of fire—presumably storing warmth, so it was fancied. According to the old and erroneous Doctrine of Signatures, it was supposed that nature kindly indicated by signs curative uses for which plants and gems and colors were intended. By this false doctrine, poultices of red cranberries were supposed to be good for the fiery red rash of erysipelas. A fourteenth century physician wrapped the son of the King of England, Edward the Second, in red cloth when he lay ill of smallpox. And even 450 years later, when the Emperor of Germany had smallpox he was given the red treatment—and died.

Today in America red is reduced to treating less vital ailments. You can still hear people advising:

"Wear coral to cure nosebleed."

"To stop your nose from bleeding, tie a red string around your thumb."

And—returning to rheumatism—red flannel is still supposed to be better than white as a protector. Dr. A. A. Thomen of New York, who has made a study of America's medical wrong beliefs, writes: "Even in this day of enlightenment a winter never passes without the doctor's seeing the usual quota of red flannel chest-protectors!"

How treatment of cancer is often delayed, tragically, is another lesson set forth in the maze of superstitions at the New York Fair. What a flood of futile, terribly useless remedies people are actually using against cancer became evident to physicians a few years ago. The American Society for the Control of Cancer had offered a prize of $50,000 for discovery of a cause of cancer and a cure. When the contest was over, the society had received 1,500 "cures" including such ideas as that eating onions would cure cancer; drinking tea from violet leaves or wearing a poultice of violet leaves would be effective. From these simple suggestions the "cures" ranged to more fantastic remedies calling for turtle oil, adder venom, a live toad bound on the cancer, a drink made of powdered frog.

The exact cause of cancer and a specific cure for all types and stages of cancer are still being sought by physicians and laboratory workers. Meanwhile, a cancer patient who puts trust in some unorthodox remedy on the ground that so-and-so tried it and survived, is taking a poor gambling risk with his life, as medical science sees it. When treated early by a capable physician, cancer can be checked and often eradicated so that it never returns; but if neglected until it has spread and become general, medical science can do very little.

Superstitions and fallacies are prevalent where people cannot get medical aid. In isolated mountain districts, in marginal farms of the great open spaces, in homes of sharecroppers and poverty-stricken laborers, people often fall back on doctoring advice of those around them. Sometimes the result is commonsense, if not the latest medical science. Other times, the neighborhood advisers are full of traditional lore. They suggest putting an axe under the bed to cut a pain. They blow the fire out of burns, with magic words. They prescribe soot tea for the baby's colic, and measure a child to make it grow faster.

But cities have their share of old-wives' lore, too. In a health class, in a high school only a few miles outside of metropolitan New York, a teacher was told by a boy that he knew some one who could blow fire out of burns. And when she probed further, to find out what other archaic ideas lurked in the pupils' minds back of their lessons on vitamins and sanitation, she discovered a variety of folk beliefs.

Nearly a dozen boys stepped up with magic remedies for warts. You can get rid of warts, the teacher was told, by

tying knots in a string held over the wart and burying the string. Another boy said it was better to spit on the piece of string and put it in your pocket; then when the string rots, the warts drop off. Another boy's remedy in the wart symposium was to take as many beans as you have warts and put them in a bag. Drop the beans along the road, and when some one finds them, he will have your warts.

These are fair samples of literally scores of rites for removing warts. A book on the folk lore of a single county in Illinois includes over a hundred wart remedies, mainly magic.

Smells are still regarded as powerful to ward off disease, by Americans who should know that "germs can't smell." The asafetida bag is not entirely obsolete. An occasional child wears one to keep off disease. The argument that the asafetida bag works by keeping other children—who may have diseases—at a distance is weakened when you reflect that children with colds and some other ailments have temporary loss of their sense of smell.

Camphor is a supposed germ-killer. So are onions. Actually, carrying either one around with you cannot kill germs, nor can eating onions keep germs away.

Dr. H. W. Haggard of Yale, chairman of the committee planning the superstition exhibit, once commented: "Most people secretly believe in the occasional accomplishment of the impossible, and secretly believe that scientists who scoff at their beliefs may be wrong."

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Science News Letter, March 4, 1939

ARCHAEOLOGY

Seven-Foot Statue Shows Pharaoh in Role of Osiris

See Front Cover

SEVEN feet tall, a majestic, high-hatted stone figure of Pharaoh Merenptah of the 13th century B. C. has come to rest in Boston's Museum of Fine Arts. It is pictured on the front cover of this week's SCIENCE NEWS LETTER.

Pronounced excellent of its type—showing an Egyptian king in the role of Osiris, god of the dead—the statue once adorned a temple at Armant on the west bank of the Nile. The statue and a number of others were found where they had been ceremonially "buried" by ancient Egyptians who, at one time, rebuilt the temple.

Science News Letter, March 4, 1939

ASTRONOMY

Hydrogen Is Fuel of Stars And Helium Is the Ash

Professor Russell Describes Process by Which Sun Liberates Its Energy; Empty Space Is Really Filled

HYDROGEN is the fuel and helium is the ash of the stellar engine which produces the vast amounts of energy liberated by the stars and the sun through the ages, Prof. Henry Norris Russell, Princeton astronomer, told a symposium on astrophysics in Philadelphia.

The meeting, sponsored by the American Philosophical Society and the Franklin Institute, summarized current knowledge of stars and the planets.

Speeding bits of hydrogen atoms are now believed to bring about spontaneous disintegration of chemical elements and release vast amounts of energy, Prof. Russell explained.

Crediting Prof. H. A. Bethe of Cornell University with having developed current concepts on the source of stellar energy, Prof. Russell said that as the various elements were broken up they gave off helium as the end product. Thus helium—the light stable gas—is the "ash" of stellar energy production.

From purely mathematical theories on the behavior of atomic nuclei when they are smashed by other atomic particles inside the sun and star, it is possible to explain why many of the lighter elements —lithium, beryllium and boron—appear not to be present in the sun to any great extent. Long since they have been transmuted into helium, giving off radiation.

It is only when carbon in the sun is considered that the destruction of the elements changes. For carbon, explained Prof. Russell, a whole series of transmutations occur which release large amounts of gamma radiation and which end up by recreating the carbon again along with more helium. Carbon, in effect, acts as the catalyst.

The sun will keep on shining for another 10,000,000,000 years, Prof. Russell estimated, and each 100,000,000 years it will grow enough hotter to raise the earth's temperature by one degree Fahrenheit.

Thus if nothing happens to the earth in the meantime it is going to be about 168 degrees on the earth in the year 100,001,938 A.D. instead of 68 degrees average as it is now. These supertropical temperatures would probably melt all the ice caps at the earth's poles, raise the level of the ocean many feet and have other equally intriguing implications.

Science News Letter, March 4, 1939

"Empty" Space Misnomer

THE NEWEST studies of astronomy show that "empty" interstellar space contains about as much matter as do all the stars and planets, Dr. Theodore Dunham, Jr., Mount Wilson Observatory astronomer, told the symposium on astrophysics in Philadelphia.

Laboriously scientists are tracking down the identification of this cosmic dust for it may have profound implications on the nature of the universe.

The dust may be either the beginning or the end of stellar bodies. Dr. Dunham pointed out. It may have been cast off into space by the stars through the pressure created by their radiation, or it may —in the reverse sense—be the material from which the stars were formed and which they may still be gathering up as they push their way through space.

Using a single bright star known as X_2-Orionis for a beacon light, astronomers have been identifying the chemical elements in the cosmic dust with spectrographs attached to the great 100-inch Mount Wilson telescope. Sodium, two kinds of calcium, potassium and titanium have already been identified from spectrum lines and there are seven other lines which are known but not yet identified.

It turns out, Dr. Dunham said, that between the earth and the star there are probably 89,000,000,000 atoms.

Preponderantly these atoms are those of hydrogen for it is found that in each cubic meter in a path between the earth and X_2-Orionis there are:

Electrons		7,000,000
Hydrogen	atoms	7,000,000
Sodium	"	150
Potassium	"	5
Calcium	"	3
Titanium	"	.03

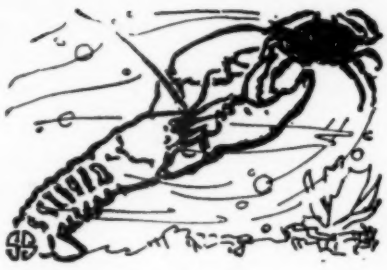
These estimates are for only this single star, Dr. Dunham emphasized. Many more "soundings" of interstellar space will be needed before the figures can be applied to space as a whole.

Science News Letter, March 4, 1939

MARINE BIOLOGY

NATURE RAMBLINGS

by Frank Thone



Plankton, Nekton, Benthos

"IF IT SWIMS, crawls, or clings, we have it," boasts a fish market sign quoted by *The New Yorker,* which brightly adds its acceptance of the challenge: "All right, send us a beaver, two caterpillars and a sloth."

Yet in spite of the naivete that exposed it to this wisecrack, the fish market sign is a fairly good job of marine ecological classification. It should add just one word, to read, "If it drifts, swims, crawls or clings. . . ." For then it would include the three great groups into which water-dwelling organisms are divided by biologists: plankton, nekton, and benthos.

If it drifts, it is plankton. We often see this word, but may not have a very good idea what it means. Plankton includes all the floating, unanchored forms of animal and plant life, large or small, that either have no directive swimming powers at all, or at most possess swimming powers so feeble that the real determining forces in their movement are the water currents themselves.

Plankton is predominantly microscopic, including both one-celled plants and animals. It also includes tiny creatures of the water-flea class. There are, however, some large plankton animals, like jellyfish and the pearly nautilus.

Nekton is made up of animals that know where they want to go and have the means for getting there. Most nekton organisms are fish and fish-shaped mammals like whales and seals, but the classification also takes in some of the larger invertebrates like the squid.

Benthos is like the plankton in that it includes plants as well as animals. But it is unlike both plankton and nekton in that it does not move about; it is fixed to the bottom. Seaweed, eel-grass, oysters, clams, rock barnacles, sponges, seasquirts, limpets, corals, crinoids, and burrowing things like marine worms and teredos, all classify as benthos. They are things that "cling," in the fish market sign's classification.

But how about things that "crawl"? There is a whole host of bottom-dwelling forms that can move about with more or less freedom when they choose, but that usually don't choose. They include such familiar things as flounders, skates, rays, lobsters, crabs, octopuses, starfish, abalones and snails. Are they lazy nekton? Are they occasionally active benthos?

Whatever they are, at least this can be said of them: that rigid lines of definition are hard to fasten on living things, and that attempts to do so must inevitably end in fussy and rather futile logic-chopping.

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GEOLOGY

Ancient Dunes No Index To Ice Age Desert State

DUNES formed of drifting sand many thousands of years ago, at the close of the latest Ice Age, are fairly common in the upper Mississippi Valley and elsewhere in the glaciated parts of this country, as well as in comparable locations in northern Europe. They are usually so well covered with vegetation that no one but a scientist would suspect them of being sand hills.

This widespread evidence of drifting sand left in the wake of the retreating ice sheets has been taken by some European geologists as evidence for a period of desert-like climate immediately following the close of the last glacial period.

With this opinion, however, Dr. William S. Cooper, professor of botany at the University of Minnesota, does not wholly agree. Admitting that these post-glacial dunes may have been formed under desert climatic conditions, he points out that this is not the only way they could have been formed.

Dr. Cooper has made a special study of the "fossil dunes" in his own state, and has found evidence that they were formed during a relatively brief geological interlude, when a rapid sinking in the general water level following the melting back of the last ice lobes exposed bottom and shore sands to wind action. Even under humid climatic conditions, dunes thus formed will remain naked sand so long as the wind can get at them and keep them on the move, as

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is well shown in the well-rained Atlantic and northern Pacific coasts of the United States, not to mention the famous dunes on the southern and eastern shores of Lake Michigan.

Dr. Cooper also points out present-day Ice Age conditions which he has studied personally in Alaska. There, around the ends of retreating glaciers, thick vegetation grows up, and even dense forests of conifers push to within a few yards of the melting blocks of ice.

Science News Letter, March 4, 1939

AERONAUTICS

Going Up

● "Most flying takes place in the thick of the weather at levels ranging approximately from 2000 to 14,000 feet. The reasons for this low altitude flying are the physical discomfort from lack of oxygen experienced at higher levels and the fact that at present most planes and engines perform best within these limits. But the day is coming when non-stop flights of over 3000 miles will be common, and when cruising altitudes will be raised to substratospheres or even stratosphere levels — say, about 35,000 feet."—Assen Jordanoff in THROUGH THE OVERCAST (*Funk & Wagnalls*).

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From Page 135

There are only two specimens of *Conus sozoni* known. Of a related rare species, *Conus gloria-maris,* there are some 22 specimens, which have a market value among collectors of $600 to $800 each. There is no way of estimating the cash value of the two specimens of *C. sozoni.* One is jealously guarded in the U. S. National Museum and the other is treasured by Mrs. Vatikiotis. Nobody could possibly buy either one of them.

Science News Letter, March 4, 1939

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FORESTRY

Foreign Fungus Foes Menace American Trees

FOREIGN enemies are entrenched in America on a dozen fronts. Their destructive activities are directed not at cities and the people who dwell therein but at our wealth of trees. Their havoc has already run into the hundreds of millions, and the end is not yet in sight. Against some of the worst attacks scientists have thus far been unable to find adequate defense.

Newest outbreaks are of diseases that threaten two favorite street trees, the American elm and the London plane or sycamore. Elms, already losers from the fungus-caused Dutch elm disease in the region around New York, are now suffering from a killing virus in the Ohio valley. At first thought to be a "town" ailment, the disease has now been found in forest elms in West Virginia.

The London plane tree, a hybrid between European and American sycamores, is particularly valued for street plantings because it can endure city smoke. The fungus that is killing it in Philadelphia and Baltimore, and that threatens to spread to other cities, is therefore a particular foe of city foresters and park commissioners.

Two other new diseases are menacing forest trees that are valuable alike for their wood and as sources of food for wildlife, states G. F. Gravatt, plant pathologist in the U. S. Department of Agriculture. One is a virus that has been found attacking oaks in Wisconsin. Although its distribution is limited as yet, foresters and wildlife administrators are alarmed over the possibility of its spread.

The other disease threatens to wipe out the American persimmon, valued as a source of hard wood for golf clubs and of food for wild birds and mammals, as well as a soil-binder in erosion control. It first appeared near Nashville, Tenn., in the summer of 1937. Last summer, R. Kent Beattie of the U. S. Department of Agriculture found it all the way from South Carolina to Mississippi. It kills the trees in a few weeks, and spreads with explosive rapidity.

As if the plague of chestnut blight that started something over a generation ago and has practically wiped out the American chestnut were not enough, a new enemy is attacking the few remaining chestnut trees in the South that the wilt has not yet reached. It is a root rot fungus, and it kills not only the chestnut trees but their smaller-fruited relatives, the chinquapins, which are an even more important source of food for game.

A deadly combination of a scale insect and a fungus is killing beech trees in New England. It got started in Nova Scotia or New Brunswick, and presently crossed the Maine boundary. Beechnuts are an important wildlife food, and the probable replacement of dead beeches by maples will make the forest a decidedly leaner larder for game.

A double invasion, one disease from Europe and one from Asia, has converged upon certain species of willow, and is killing the trees in great numbers. Willows are irreplaceable in certain types of soil conservation plantings, and they are also favored browse for deer and other game animals.

Against all these enemies of our trees scientists are struggling valiantly, though it is an uphill fight all along the line. The persimmon blight has spread so rapidly that there is no use trying to get rid of it by destroying infected trees, as is being done in the battle against the Dutch elm disease. The attack on the chestnut ended in disaster long ago. Whether the new root rot that is killing chinquapins will wipe them out also is still uncertain, but the prospects are not bright.

In some cases, doomed native species can be replaced with resistant trees brought from other countries. Mr. Beattie spent several years in the Orient, seeking suitable chestnuts, and brought back a number of promising varieties. The same may be done in the case of the persimmon, for Chinese and Japanese persimmons have been found to be immune to the fungus. Hybrids between susceptible native trees and resistant foreign species are sometimes resistant.

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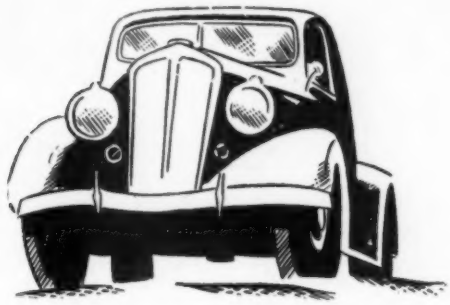
●RADIO

Dr. Otto Struve, director of Yerkes Observatory of the University of Chicago and of the McDonald Observatory of the University of Texas-University of Chicago, will be guest scientist on "Adventures in Science" with Watson Davis, Director, Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, March 9, 7:15 p. m. EST, 6:15 p. m. CST, 5:15 p. m. MST, 4:15 p. m. PST. Listen in to your local station. Listen in each Thursday.



WHICH 1939 CARS ARE "BEST BUYS"?

"Catwalk grilles," "force-back overdrives," "transverse stabilizer links," "two-speed axles," "steering column gearshifts," "dual carburetors," "floating oil intake." . . .

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Which of these terms represent essential values that you should look for in buying an automobile?

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Divided into nine price classifications, ranging from $400 to $2,500, over 70 models of the 1939 cars are rated *by name* in this report, *in the estimated order of their merit.* These are some of the cars included:

PONTIAC	**OVERLAND**	**CADILLAC**	**CHEVROLET**
FORD	**WILLYS**	**STUDEBAKER**	**CHRYSLER**
BUICK	**PLYMOUTH**	**DE SOTO**	**PACKARD**
OLDSMOBILE	**DODGE**	**MERCURY**	**HUDSON**

These ratings are based on such factors as economy of operation, durability, safety, and mechanical soundness. Appraisals of the new features such as "force-back overdrives" are given in terms of their worth to car owners and tables are printed showing comparative gas mileage obtained from recent test runs and other comparative statistics of prime importance in choosing a car.

Read this report before you buy *any* 1939 car! It will help you to make substantial savings not only on the initial purchase price but on operating costs as well.

Other reports in this issue give valuable buying information on canned tomatoes, tomato juice, window shades and industrial insurance (the insurance that doesn't insure!).

By mailing the coupon below, you can get this issue—followed by eleven more monthly issues. In April—at no extra cost—you will also get Consumers Union's 1939 *Annual Buying Guide*—a 288-page handbook rating over 2,000 brands of products as "Best Buys," "Also Acceptable," and "Not Acceptable."

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•First Glances at New Books

Psychology—Education

THE NINETEEN THIRTY EIGHT MENTAL MEASUREMENTS YEARBOOK OF THE SCHOOL OF EDUCATION, RUTGERS UNIVERSITY—Oscar Krisen Buros, ed.—*Rutgers Univ. Press,* 415 p., $3. A comprehensive listing for the reference shelves of all those interested in educational and intelligence testing.

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Political Science

PATHS TO PLENTY—Henry A. Wallace—*National Home Library,* 150 p., 15 c.

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Horticulture

PLANT CHEMICULTURE (3d ed.)—C. D. Dawson and M. V. Dorn—*Dawson and Dorn,* 130 p., $1. Widespread interest in "dirtless farming" is attested by the fact that this still new work is already in its third edition. Bibliography and suggestions for students take up 17 added pages, and there are also 10 new illustrations.

Science News Letter, March 4, 1939

Forestry

OUR NATION'S FORESTS—Rosalie Edge—*Emergency Conservation Committee, 734 Lexington Avenue, New York City,* 24 p., 10 c. if purchased direct from Emergency Conservation Committee. An attractively illustrated pamphlet suitable for use in high schools.

Science News Letter, March 4, 1939

Bibliography

INDEX TO PUBLICATIONS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, 1931-1935—Mary A. Bradley, Comp.—*Govt. Print. Off.,* 518 p., $1.25.

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Astronomy

SUNDIALS: How to Know, Use, and Make Them—R. Newton Mayall and Margaret L. Mayall—*Hale, Cushman & Flint,* 197 p., illus., $2. Simple discussion of the astronomical basis for sundials and detailed directions for making and mounting them. Of especial interest are the chapters on the history of sundials and on notable dials now in existence.

Science News Letter, March 4, 1939

General Science

SCIENCE EXPERIENCES WITH INEXPENSIVE EQUIPMENT—C. J. Lynde—*International Textbook,* 258 p., $1.60. You don't need a costly lot of apparatus to do many highly instructive and interesting science experiments. Bottles out of the kitchen, tea kettles, toy balloons, umbrellas, baseballs are some of the equipment specified by this professor of physics in Teachers College, Columbia University.

Science News Letter, March 4, 1939

Sociology

SOCIAL WORK IN GREATER CLEVELAND—Lucia Johnson Bing—*Welfare Federation of Cleveland,* 255 p., $1.25. The story of how many public and private agencies are cooperating to benefit social conditions for living in one large city. The book contains some beautiful photographic illustrations.

Science News Letter, March 4, 1939

Hygiene

TEACHABLE MOMENTS, A NEW APPROACH TO HEALTH—Jay B. Nash—*Barnes,* 243 p., $1.50. A physical education teacher gives his ideas of how to achieve health.

Science News Letter, March 4, 1939

Engineering

HOW TO ESTIMATE—Gilbert Townsend, J. Ralph Dalzell, and James McKinney—*American Tech. Soc.,* 629 p., $4.75. A practical manual on estimating material and labor costs in building construction. Sample blueprints are included.

Science News Letter, March 4, 1939

Zoology

STRANGE ANIMALS AND THEIR STORIES—A. Hyatt Verrill—*L. C. Page,* 235 p., $2.50. The author emphasizes the odd and bizarre in the animal kingdom, and succeeds in producing a very readable popular book.

Science News Letter, March 4, 1939

Anatomy

THE FETAL PIG: An Introduction to Mammalian Anatomy—Hazel E. Field—*Stanford Univ. Press,* 53 p., 75 c. In the opinion of the author, the fetal pig is a better animal for student dissection than the conventional cat, rat or rabbit. This booklet describes structures and gives direction for laboratory work.

Science News Letter, March 4, 1939

Conservation

FIELD AND LABORATORY TECHNIC IN WILDLIFE MANAGEMENT—Howard M. Wight—*University of Michigan Press,* 107 p., illus., $1.50. A new field manual which should be of greatest usefulness in wildlife management courses now being offered, and will be of interest to all persons interested in wildlife.

Science News Letter, March 4, 1939

Geology

LEXICON OF GEOLOGIC NAMES OF THE UNITED STATES—M. Grace Wilmarth, comp.—*Govt. Print. Off.,* 2 vols., 2396 p., $2.50 per set. (Geol. Survey Bull. 896). This is one of the most generally useful publications ever issued by the U. S. Geological Survey. It lists alphabetically all the thousands of formations that have names in the literature, cites sources, gives location, age, thickness lithology and other pertinent data. It will be welcomed not only by geologists but by ecologists, foresters, engineers and all others who have occasion to tell exactly what ground they stand on.

Science News Letter, March 4, 1939

Paleontology

PRINCIPLES OF PALEOBOTANY—William C. Darrah—*Chronica Botanica Co., Leiden, and Stechert, New York,* 239 p., illus., 7 guilders or about $4. A concise and well-arranged general discussion of paleobotany. Useful feature is the bibliography appended to each chapter.

Science News Letter, March 4, 1939

Engineering

THE PARKING PROBLEMS IN CENTRAL BUSINESSS DISTRICTS WITH SPECIAL REFERENCE TO OFF-STREET PARKING—Orin F. Nolting and Paul Oppermann—*Public Administration Service,* 28 p., $1.

Science News Letter, March 4, 1939

Geography—Biography

CHARCOT OF THE ANTARCTIC—Marthe Ouilé—*Dutton,* 235 p., $3.50. The first biography of one of the most famous of French explorers, whose two trips to the Antarctic in the "Pourquoi Pas?" (Why Not?) are ranked with the explorations of Scott and Amundsen. A fascinating document for the arm-chair polar traveler.

Science News Letter, March 4, 1939

Biology

THE MICROSCOPE MADE EASY—A. Laurence Wells—*Warne,* 181 p., $1.50. How to use a microscope, what to look at, and how to arrange it for the looking, clearly told and neatly illustrated.

Science News Letter, March 4, 1939

Entomology

A REVIEW OF THE GENUS EUCERCERIS (Hymenoptera: Sphecidae)—Harman A. Scullen—*Oregon State College,* 80 p., 13 pl., 50 c. The monograph of a sphecid genus constitutes the first in a series of studies in entomology to be published by Oregon State College.

Science News Letter, March 4, 1939